



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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| (75) Inventors/Applicants (for US only): SENYÜREK, Sefik [TR/TR]; Beko Elektronik A.S., Beylikdüzü Mevkii, Büyükçekmece, İstanbul 34901 (TR). İSİKÇAY, Setrak [TR/TR]; Beko Elektronik A.S., Beylikdüzü Mevkii, Büyükçekmece, 34901 İstanbul (TR).   |  | With international search report.<br>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.  |   |
| (74) Agent: ANKARA PATENT BUREAU LTD.; S. Adem Yavuz Sokak 8/22, Kızılay, 06440 Ankara (TR).   |  |  |   |
| (54) Title: METHOD FOR TRANSFERRING INFORMATION AVAILABLE ON TELEVISION SCREEN TO ANOTHER MEDIUM   |  |  |   |
| (57) Abstract  |  |  |   |
| <p>A video line containing teletext information is recognized and decoded by a digital data processing block (3) and such information is transferred from micro controller (4) to interface block (10) by passing through memory (8) first, buffer (9) thereafter, where (at the said interface block (10)) matrix and characters coming in the form of digital data are converted to PCL format and sent to printer (12) by means of the connector (11) and thus information available on a television screen is transferred to another medium.</p> |  |  |   |
| <pre>     graph TD         A[Video Input] --&gt; B[Digital Data Processing Block]         B --&gt; C[Microcontroller]         C --&gt; D[Interface Block]         D --&gt; E[Printer]         E --&gt; F[Television Screen]         G[Memory] --&gt; D         H[Buffer] --&gt; D         I[Remote Control] --&gt; D         J[Keyboard] --&gt; D         D --&gt; K[Control]         K --&gt; E         L[IIC BUS] --&gt; D         D --&gt; M[RGB]         M --&gt; F     </pre>   |  |  |   |

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## METHOD FOR TRANSFERRING INFORMATION AVAILABLE ON TELEVISION SCREEN TO ANOTHER MEDIUM

Hereby invention relates to an electronic processing of teletext information such as graphic, alphanumerical data, symbol displayed on television screen and to a 5 transferring method of such information to a printer.

Text and graphics added to video signals which are transmitted by TV broadcasters are displayed on the screen in the order of 24 lines 40 characters after being processed through teletext decoders of the television receiver.

- In the patent application W09831145, it is mentioned that the pictures on the 10 television screen is transferred to a printer after being processed by an Analog/Digital converter. With this method, the signal to be sent to the printer is being received from demodulator output that is to say from video amplification input. This signal is an analog one. In order to process analog signal in a digital environment, it is required to use an analog/digital converter, which brings 15 additional costs. The text displayed on the screen is taken as analog and applied to analog/digital converter input, thence all character distortion and oscillation on the screen occurs at analog/digital converter input. Furthermore, an error arising from quantization and sampling of the analog/digital converter is added to this signal, and it results with a distortion on the sharpness of characters' edges.
- 20 The object of the present invention is to provide to the user the ability of printing the teletext data such as graphics, alphanumeric data, symbols displayed on the screen and to obtain the print-out of this data in a speedy and errorless fashion.
- The method chosen to realise the object of hereby invention is described in the following drawing, where;
- 25 Figure 1, is the diagram of electronic circuit, together with connection points and relevant blocks,

Figure 2, video signal amplitude/time graphics

Figure 3, subprogram flow diagram.

The blocks on Figure 1 are numbered and the descriptions of those assigned numbers are as follows:

1. video timer
- 5    2. intermediate frequency layer
3. digital data (teletext) processing block
4. micro controller
5. video processing block
6. remote controller
- 10   7. infrared receiver eye
8. memory
9. buffer
10. interface block
11. connector
- 15   12. printer
13. television tube

Television audience, in order to select the channel presses the relevant key of the remote controller which then sends infrared signals to receiver eye (7). The micro controller (4) decodes the demodulated codes coming from infrared receiver eye  
20 (7) and to ensure the display of the selected channel on the television tube (13) by means of video processing block (5) of the channel selected, it conveys by two-ways communication method (IIC standard) the pre-calculated channel frequency to programmable tuner (1). At the tuner output, the signal is amplified by means of intermediate frequency layer (2). The channel selected is the radio frequency

incoming from television antenna, from satellite or cable broadcasting. If the video signal contains teletext data, the page number selected by the TV receiver user, is decoded by digital data (teletext) processing block (3). This digital data is formed of 45 bytes packages series for each TV scanning line. A video line 5 containing teletext data is coded in a specific format to enable the decoding operation by digital data processing block (3). The teletext data start with a fixed pattern approximately 12 millisecond after line synchronisation pulse: "1010101010101010 11100100". Through the first sixteen byte of this pattern, the receiver obtains the time information. The remaining part helps to identify the 10 position of the character. Then, magazine and package address group (MPAG) of two bytes and subsequent to this, data of 40 bytes arrive. (Figure 2.). Though it is possible to forward, at least theoretically, teletext data by each and every video line, as interference occurs on the images, in practice such data is transmitted only with vertical blanking between lines 6-22 and 318-335. Each package contains a 15 package number of five bytes indicating the line on which the character should be inserted.

Digital data of the teletext page is transferred from memory (8) to buffer (9), which operates as a memory storing information for a limited time period, and then to micro-controller in interface block (10). Matrix and characters in graphic 20 form incoming as digital information are converted at this interface block (10) to printer format PCL and forwarded to printer (2) by means of the connector (11) output. Through the standard printer (12) connected to the said connector (11) the print-out of 24 lines of the page kept in the memory (8) is taken on a paper.

With this invention, the signal containing teletext information is coded and 25 processed entirely by digital ways. As the environment up to printer is entirely digital, there is no need to use an additional analog/digital converter circuit.

**CLAIM**

A method for transferring the information available on the television screen to another medium characterized in that a video line containing teletext information  
5 is coded in a specific format to enable recognition and decoding of the said teletext information by digital data processing block (3), digital information forming the teletext page is conveyed from memory (8) to buffer (9) through IIC data path and then to interface block (10), where graphical matrix and characters incoming as digital data is converted to printer format (PCL) for being forwarded  
10 to printer (12) by means of the connector (11).

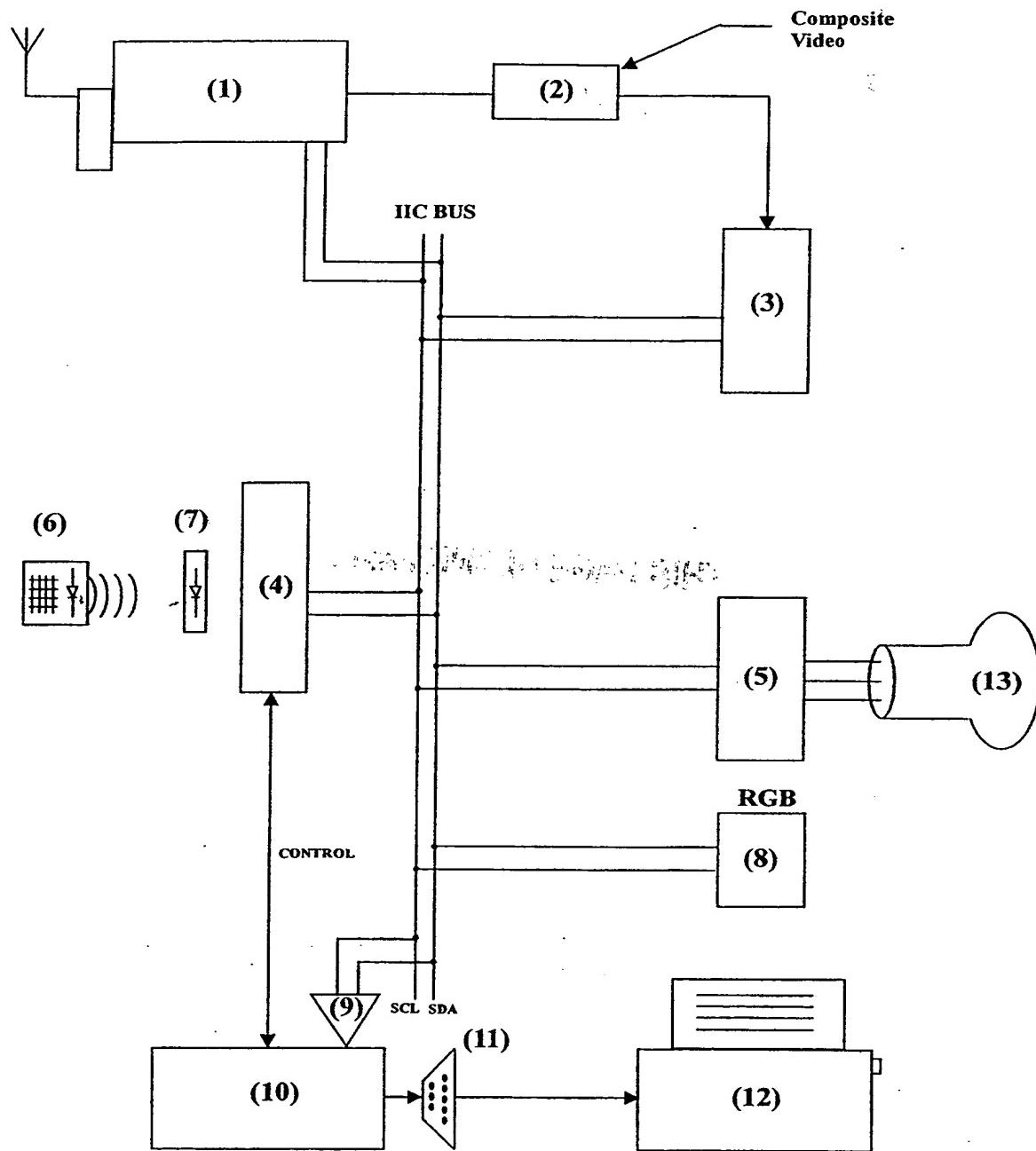


FIG- 1

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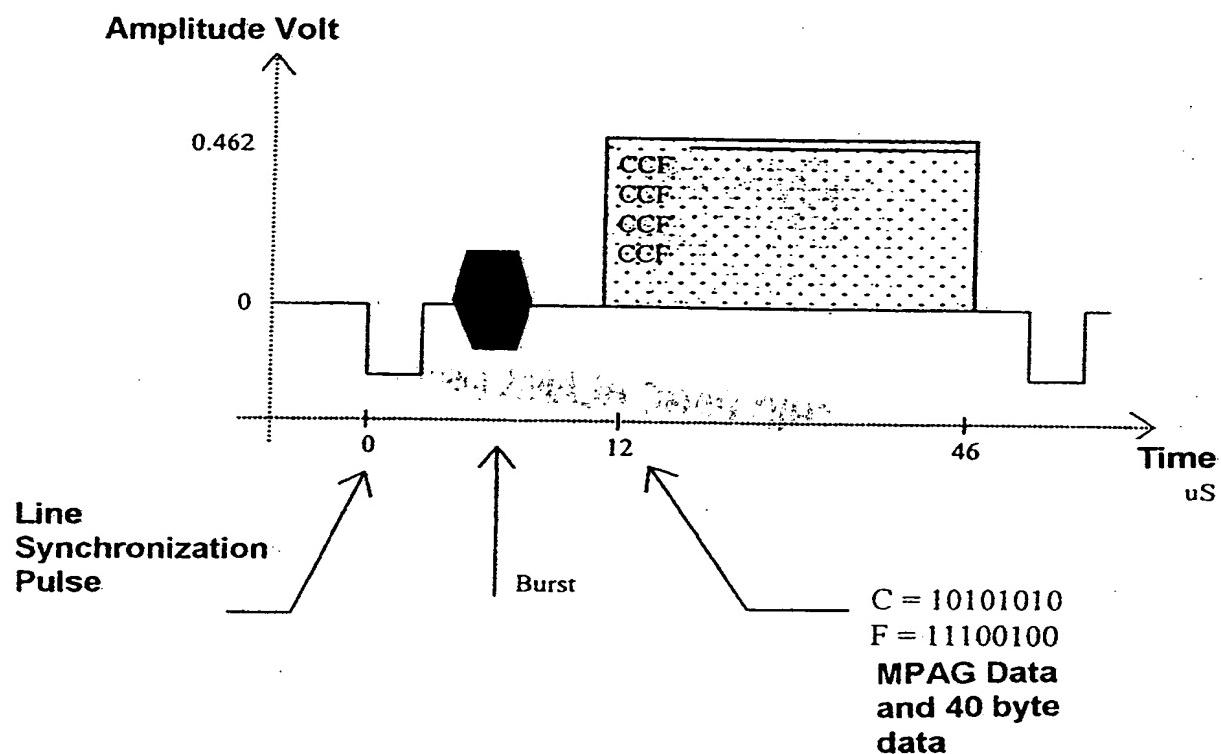


FIG.2

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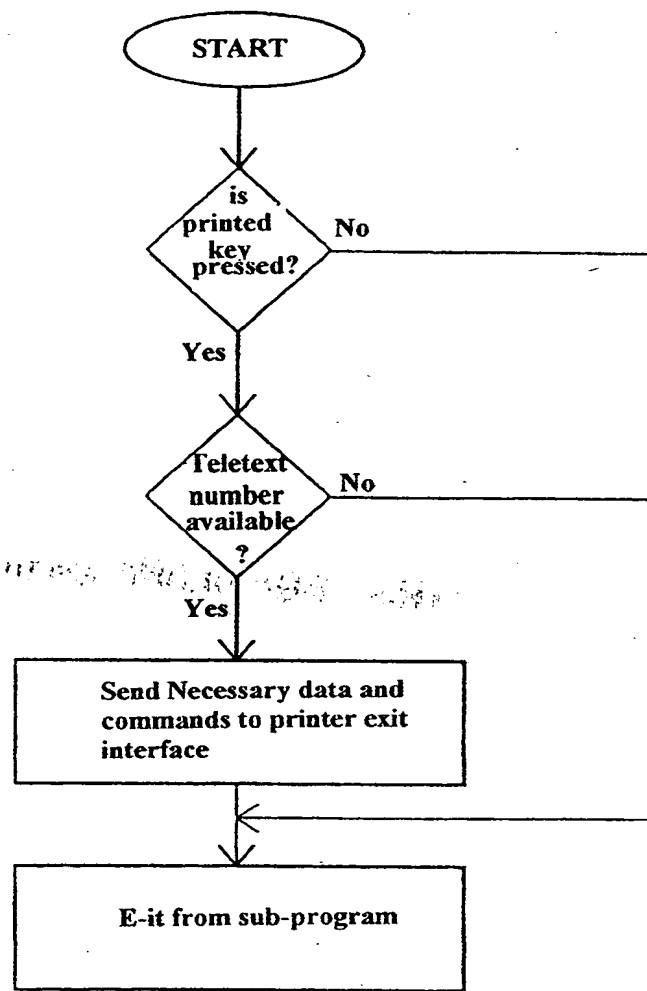


FIG. 3

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/TR 99/00047

## A. CLASSIFICATION OF SUBJECT MATTER

IPC<sup>7</sup>: H04N 7/035, 7/088

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC<sup>7</sup>: H04N 5/445, 5/91, 7/025, 7/03, 7/035, 7/083, 7/098

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|-----------|---|-----------------------|
| A         | JP 10-051746 A (ANON INC.) 30 April 1998 (30.04.98) [online] [retrieved on 31 March 2000]. Retrieved from: EPOQUE PAJ Database. | 1                     |
| A         | DE 4405019 A1 (INST. RUNDFUNKTECHNIK GMBH) 31 August 1995 (31.08.95), fig.1 and claims 1-3.                                     | 1                     |

Further documents are listed in the continuation of Box C.

See patent family annex.

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| * Special categories of cited documents:<br>„A“ document defining the general state of the art which is not considered to be of particular relevance<br>„E“ earlier application or patent but published on or after the international filing date<br>„L“ document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)<br>„O“ document referring to an oral disclosure, use, exhibition or other means<br>„P“ document published prior to the international filing date but later than the priority date claimed | „T“ later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention<br>„X“ document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone<br>„Y“ document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art<br>„&“ document member of the same patent family |
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| Date of the actual completion of the international search | Date of mailing of the international search report |
| 31 March 2000 (31.03.00)                                  | 14 April 2000 (14.04.00)                           |

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| Name and mailing address of the ISA/AT<br>Austrian Patent Office<br>Kohlmarkt 8-10; A-1014 Vienna<br>Facsimile No. 1/53424/200 | Authorized officer<br><br>Fussy<br><br>Telephone No. 1/53424/328 |
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# **INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.  
PCT/TR 99/00047

| Patent document cited<br>in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|---------------------|----------------------------|---------------------|
| JP A2 10051746                            | 20-02-1998          | none                       |                     |
| DE A1 4405019                             | 31-08-1995          | none                       |                     |
| DE C2 4405019                             | 28-05-1997          |                            |                     |